March 12, 1835.

The Rev. PHILIP JENNINGS, D.D., Vice-President, in the Chair.

Continuation of a former paper "On the twenty-five feet Zenith Telescope, lately erected at the Royal Observatory;" by John Pond, Esq., F.R.S., Astronomer Royal.

For determining the place of any star passing the meridian near the zenith, at the Royal Observatory at Greenwich, three different methods may be employed: first, by means of the mural circles; secondly, by the zenith telescope, used alternately east and west; and lastly, by means of a small subsidiary angle, as described by the author in a former paper. The details of computations made according to each of these three methods are contained in the present paper; from which it appears that they all give results nearly identical; and that, when the observations with the two circles are made with sufficient care, the greatest error to be apprehended does not exceed the quarter of a second.

"Remarks towards establishing a Theory of the Dispersion of Light." By the Rev. Baden Powell, M.A., F.R.S., Savilian Professor of Geometry in the University of Oxford.

In an abstract of M. Cauchy's Theory of Undulations, published in the London and Edinburgh Journal of Science, the author of the present paper deduced a formula expressing precisely the relation between the length of a wave and the velocity of its propagation; and showed that this last quantity is, in fact, the same as the reciprocal of the refractive index. The author here examines, by means of this formula, the relation between the index of refraction and the length of the period, or wave, for each definite ray, throughout the whole series of numerical results which we at present possess; and the conclusion to which he arrives from this comparison, for all the substances examined by Frauenhofer, viz. for four kinds of flint glass, three of crown glass, water, solution of potash, and oil of turpentine, is that the refractive indices observed for each of the seven definite rays are related to the length of waves of the same rays, as nearly as possible according to the formula above deduced from Cauchy's theory. For all the media as yet accurately examined, therefore, the theory of undulations, as modified by that distinguished analyst, supplies at once both the law and the explanation of the phenomena of the dispersion of light.

March 19, 1835.

Sir JOHN RENNIE, Knt., Vice-President, in the Chair.

A paper was read, entitled, "Some Account of the Eruption of Vesuvius, which occurred in the month of August, 1834, extracted from the manuscript notes of the Cavaliere Monticelli, Foreign Associate of the Geological Society, and from other sources; together with a Statement of the Products of the Eruption, and of the Con-